

WHAT IS CLAIMED IS:

1. An oscillator device comprising:

an oscillation circuit including an NPN oscillation transistor and a buffer amplifier circuit including a PNP buffer amplifier transistor; wherein

the NPN oscillation transistor and the PNP buffer amplifier transistor are connected in series to a power supply;

a collector of the NPN oscillation transistor is connected to a power terminal and is AC-grounded;

a base of the PNP buffer amplifier transistor is AC-grounded;

at least one of a resistor and an inductor is connected between a collector of the PNP buffer amplifier transistor and the ground;

the collector of the PNP buffer amplifier transistor is AC-connected to an output terminal; and

an emitter of the NPN oscillation transistor and an emitter of the PNP buffer amplifier transistor are directly connected.

2. The oscillator device according to Claim 1, further comprising at least two resistors connected at at least two positions respectively selected from between the power

terminal and a base of the NPN oscillation transistor, between the base of the NPN oscillation transistor and a base of the PNP buffer amplifier transistor, and between the base of the PNP buffer amplifier transistor and a ground, such that individual bias voltages are applied to the base of the NPN oscillation transistor and the base of the PNP buffer amplifier transistor.

3. The oscillator device according to Claim 1, wherein the oscillation circuit comprises a crystal oscillator connected between a base of the NPN oscillation transistor and a ground, and a capacitance element connected to the crystal oscillator, and the oscillation frequency varies by changing the value of the capacitance element.

4. The oscillator device according to Claim 3, wherein the oscillator device is a temperature-compensated crystal oscillator device.

5. The oscillator device according to Claim 1, wherein the NPN oscillation transistor and the PNP buffer amplifier transistor are integrated in a single package.

6. An oscillator device comprising:  
an oscillation circuit including a PNP oscillation

transistor and a buffer amplifier circuit including an NPN buffer amplifier transistor; wherein

the PNP oscillation transistor and the NPN buffer amplifier transistor are connected in series to a power supply;

a collector of the PNP oscillation transistor is connected to a power terminal and is AC-grounded;

a base of the NPN buffer amplifier transistor is AC-grounded;

at least one of a resistor and an inductor is connected between a collector of the NPN buffer amplifier transistor and the ground;

the collector of the NPN buffer amplifier transistor is AC-connected to an output terminal; and

an emitter of the PNP oscillation transistor and an emitter of the NPN buffer amplifier transistor are directly connected.

7. The oscillator device according to Claim 6, further comprising at least two resistors connected at at least two positions respectively selected from between the power terminal and a base of the PNP oscillation transistor, between a base of the PNP oscillation transistor and a base of the NPN buffer amplifier transistor, and between the base of the NPN buffer amplifier transistor and a ground, such

that individual bias voltages are applied to the base of the PNP oscillation transistor and the base of the NPN buffer amplifier transistor.

8. The oscillator device according to Claim 6, wherein the oscillation circuit comprises a crystal oscillator connected between a base of the PNP oscillation transistor and a ground, and a capacitance element connected to the crystal oscillator, and the oscillation frequency varies by changing the value of the capacitance element.

9. The oscillator device according to Claim 8, wherein the oscillator device is a temperature-compensated crystal oscillator device.

10. The oscillator device according to Claim 6, wherein the PNP oscillation transistor and the NPN buffer amplifier transistor are integrated in a single package.

11. An oscillator device comprising:

an oscillation bipolar transistor having a base that is connected to a resonance circuit and a collector that is RF-grounded; and

a buffer amplifier FET having a gate that is grounded and one of a drain and a source that is grounded via a load

impedance element including at least one of a resistor and an inductance element.

12. The oscillator device according to Claim 11, wherein the bipolar transistor is an NPN transistor and the FET is a P-channel FET.

13. The oscillator device according to Claim 11, wherein the bipolar transistor is a PNP transistor and the FET is an N-channel FET.

14. The oscillator device according to Claim 11, wherein the resonance circuit comprises a piezoelectric element.

15. The oscillator device according to Claim 11, wherein the resonance circuit comprises an inductance element.

16. The oscillator device according to Claim 11, wherein the resonance circuit includes a varactor diode and the oscillation frequency is varied by a voltage applied to the varactor diode.

17. An electronic apparatus comprising the oscillator

device according to Claim 1.

18. An electronic apparatus comprising the oscillator device according to Claim 6.

19. An electronic apparatus comprising the oscillator device according to Claim 11.

1007/83 000000